

## PATENT ABSTRACTS OF JAPAN

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(54) DATA RECORDING MEDIUM

(57)Abstract:

PURPOSE: To record various data with high security in a manner to be convenient to use to a recording medium such as a disc tape or the like.  
CONSTITUTION: A recording medium 12 where data are recorded is accommodated in a case 11. An IC 20 is installed at a predetermined position of the case 11. A start program and ciphered data are recorded in the recording medium 12 and a cipher program of the recorded data and data of password Nos. are stored in a memory in the IC 20. When the recorded data are to be read out or when data are to be written in the recording medium 12, an input password No. is sent to the IC 20 and compared with the password No. stored in the memory in the IC 20 by an operational means. When the password Nos. agree with each other, ciphered data recorded in the recording medium 12 are decoded or data to be recorded to the recording medium 12 are ciphered according to the cipher program stored in the memory in the IC 20.

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### CLAIMS

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[Claim(s)]

[Claim 1] In a data recording medium which makes a predetermined case store a recording medium on which data is recorded by a predetermined method and attaches to a prescribed spot of this case IC which has a memory and a calculating means, data ciphered by the above-mentioned recording medium as a boot program is made to record. A memory in the above-mentioned IC is made to memorize a data encryption program ciphered [ above-mentioned ] and data of

a passwordWhen reading data recorded on the above-mentioned recording mediumor when writing data in the above-mentioned recording mediumWhen you make the above-mentioned IC supply an inputted passworda password and a calculating means which were memorized by memory in this IC make it compare and a password is in agreementA data recording medium which could be made to perform encryption of data recorded on enciphered decoding or the above-mentioned recording medium of data which was recorded on the above-mentioned recording medium according to an enciphered program memorized by memory in IC.

[Claim 2]The data recording medium according to claim 1 which was made to perform a block to which an enciphered program is not made to output by collation of a password within IC when [ at which it set beforehand ] prescribed time continuation is carried out and disagreement is detected even if a password is in agreement by future collation.

[Claim 3]The data recording medium according to claim 2 been made to cancel a block by making a password set up apart from the above-mentioned password in the state defined beforehand where carried out prescribed time continuationdetected disagreementand it was blocked input.

[Claim 4]The data recording medium according to claim 1 it was made to make a memory in IC memorize additional information.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention relates to the data recording medium applied to various recording mediasuch as magnetic diskssuch as a floppy disk a magneto-optical discan optical discand magnetic tape.

[0002]

[Description of the Prior Art]As a recording medium which records a computer program etc.the magnetic disk called a floppy disk etc. is used widely. The magneto-optical disc and optical disc which use a laser beam for record or playback are also used as a medium whose storage density is higher than a magnetic disk.

[0003]In making a program record on these disksFor examplewhen recording data on the sector set as the data recording tracks of each disk and playing into it in an order according to the recording format of this diskit is made to play record data in order of the sector according to a recording formatand he is trying to acquire the recorded program.

[0004]On the other handin order to improve the security nature of the data recorded on the disknot making data record in order of the sector according to

the usual format but adding suitable offset etc. to a sector and recording them is performed. Thus if it is not prepared for the computer side which the offset data etc. which made the sector change read when reading the data recorded on the disk a right program cannot be acquired but the unauthorized use of a program can be prevented.

[0005]

[Problem(s) to be Solved by the Invention] However even when an order of a sector is made to change in this way it is possible to reproduce all the data recorded on one disk with the copy device reproduced on another disk as it is. Therefore if the offset data of the sector required for exact read-out of data etc. are prepared for the computer side which performs reproduction from an original disk with such a copy device and uses the reproduced disk it is possible to reproduce and use a program improperly. Therefore such a record method is an imperfect record method from a viewpoint of the prevention from an unauthorized use of a program.

[0006] There is also the method of enciphering the program data itself to record on the other hand based on a predetermined cipher system and recording the enciphered data on a disk. In this case the enciphered program which decodes this program data is required. Management of the disk etc. with which this enciphered program was recorded [ the necessity of preparing independently the disk etc. with which the enciphered program was recorded ] for \*\* is troublesome and when this disk is lost decoding of program data will become impossible. In order to make it decoding according to such loss not become impossible it is possible to copy the disk with which the enciphered program was recorded but if an enciphered program is copied security nature will become low so much and the enciphered meaning will be lost.

[0007] When enciphering in this way there is also a method of hanging scramble using a certain keyword but. In such a case if it is necessary to know the same keyword by the side decrypted [ that is enciphered and ] and the same keyword is used repeatedly a keyword will become known widely and the meaning of encryption will be lost. Therefore management of a keyword will become complicated although there is also a method of changing the keyword which is called a disposable key word mode and to be used one by one.

[0008] Although the explanation so far explained the case where computer program data was made to record on a disk also when making data record on other recording media such as magnetic tape there is same problem about security nature.

[0009] There is the purpose of this invention in the ability to be made to perform user-friendly record whose security nature is high when making various data such as a program record on recording media such as a disk and a tape.

[0010]

[Means for Solving the Problem] In a data recording medium which makes the predetermined case 11 store the recording medium 12 on which data is recorded by a predetermined method and attaches to a prescribed spot of this case 11 IC20 which has a memory and a calculating means as this invention is shown for example in drawing 1 Data enciphered by the recording medium 12 as a boot program is made to record A memory in IC20 is made to memorize an enciphered data encryption program and data of a password When reading data recorded on the recording medium 12 or when writing data in the recording medium 12 When you make an inputted password supply to IC20 a password and a calculating means which were memorized by memory in this IC20 make it compare and a password is in agreement According to an enciphered program memorized by memory in IC20 it can be made to perform encryption of data recorded on enciphered decoding or the recording medium 12 of data which was recorded on the recording medium 12. [0011] In this case when [ at which it set beforehand ] prescribed time continuation is carried out and disagreement is detected even if a password is in agreement by future collation it is made to perform a block to which an enciphered program is not made to output by collation of a password within IC. [0012] It is made to cancel a block by making a password set up apart from the above-mentioned password in this state where it was blocked input. [0013] When it mentions above it is made to make a memory in IC memorize additional information.

[0014]

[Function] According to this invention the enciphered program of the data recorded on the recording medium The security nature which decoding of the data which was memorized by IC attached to the case which stores this recording medium could not read an enciphered program from this IC unless the password was in agreement therefore was recorded on the recording medium cannot be performed either and prevents the unauthorized use of the recorded data is high. [0015] In this case by collation of the password within IC when [ at which it set beforehand ] prescribed time continuation is carried out and disagreement is detected even if a password is in agreement by future collation the effect of preventing unjust use by performing the block to which an enciphered program is not made outputting becomes higher.

[0016] By making the password set up apart from the password for enciphered program read-out in this state where it was blocked input it is having been made to cancel the block and release in the state where it was blocked can be performed good.

[0017] IC the enciphered program was remembered to be is efficiently used for the memory in IC by making additional information memorize.

[0018]

[Example] Hereafter working example of this invention is described with

reference to an accompanying drawing.

[0019] In this example it is what was applied to the data recording medium for computers which uses the magnetic disk called a floppy disk and as shown in drawing 1 - drawing 3 it constitutes. Drawing 1 is a figure showing the entire configuration of the floppy disk of this example. In a figure shows the whole floppy disk into the case 11 in which this floppy disk 10 was formed with the synthetic resin. The magnetic disk 12 3.5 inches in diameter is stored and the shutter 13 which can be opened and closed freely is attached. The window part 13a is formed in this shutter 13 when the shutter 13 is in an opened state. The position of the opening 11a by the side of the case 11 and the window part 13a is in agreement and the signal recording surface of the magnetic disk 12 is exposed.

[0020] And when the drive which mentions this floppy disk 10 later is made to equip the magnetic disk 12 rotates by a predetermined driving means and a magnetic head approaches the signal recording surface which the shutter 13 was in the opened state and exposed and record and playback of data can be performed with this head. This signal recording surface may have been formed in the case of only one side and both sides. So far it is the composition of the usual floppy disk.

[0021] And IC (integrated circuit) 20 of one chip makes it build in the corner of the case 11 of this floppy disk 10 in this example. It has supposed that it is this IC 20 that the eight points of contact 21, 22 and 23 and .... 28 were only exposed as expanded and shown in drawing 2 if it sees from the surface of the case 11 and the internal circuit is embedded in the resin which constitutes the case 11 in drawing 3 as a section shows. The composition inside IC 20 is mentioned later.

[0022] Next the composition of the drive of the floppy disk 10 constituted in this way is explained. Drawing 4 and drawing 5 are the figures showing the composition of this drive and 30 in a figure is shown and the whole floppy disk driving this floppy disk driving 30. It is connected the motor 32 side by the predetermined chucking mechanism 33 and the floppy disk 10 which has the window part 31 for equipping with the floppy disk 10 and with which the inside was equipped from this window part 31 is rotated to a prescribed speed by the motor 32 as a section shows to drawing 5. And record and playback are performed by the magnetic head which is not illustrated. The record data supplied from the host computer side mentioned later is recorded on the magnetic disk 12 and the data played from the magnetic disk 12 is supplied to the host computer side.

[0023] And in order to connect with the eight points of contact 21-28 exposed to the surface of the floppy disk 10 the terminal unit 40 is formed and it is made to have contacted the points of contact 21-28 to which eight the contact pieces 41, 42 and 43 and the tips of .... 48 which were allotted to this terminal

unit 40 corresponded respectively. And each contact pieces 41-48 are connected to the predetermined interface by the side of a host computer and it is control by the side of a host computer and can be made to perform processing of read-out of stored data etc.

[0024] Next if the composition of IC20 built in the floppy disk 10 of this example is explained as shown in drawing 6 Six [ 21-26 ] of the eight points of contact 21-28 are used here. The point of contact 21 is used as the power supply terminal VCC and it is considered as the program-voltages input terminal VPP of EEPROM55 in which the point of contact 22 was built in. The point of contact 23 is made into serial-data input/output terminal I/O, the point of contact 24 is used as the clock input terminal CLK, the point of contact 25 is used as the reset signal input terminal RST and the point of contact 26 is set to earthing terminal GND.

[0025] And the prime controller (CPU) 51 which performs data processing as a circuit inside IC20. The serial/parallel-conversion circuit 52 for performing a data input/output between the exteriors in IC20. The counting-down circuit 53 for supplying the clock for conversion to this serial/parallel conversion. 52 RAM54 which memorizes data temporarily and EEPROM55 which memorize data preservation and rewriting [ of a password etc. ] It comprises ROM56 which memorizes program such as an enciphered program and is connected by the bus line between the prime controller 51, the serial/parallel-conversion circuit 52 and each memories 54, 55 and 56.

[0026] And to the prime controller 51 and the counting-down circuit 53, the clock obtained by the point of contact 24 (clock input terminal CLK) is supplied and the prime controller 51 operates to them based on this clock. In this case, the prime controller 51 is started by the point of contact 25 (reset pulse input terminal RST) by a predetermined reset signal being supplied. The signal which carried out dividing of the clock with the counting-down circuit 53 is supplied to the serial/parallel-conversion circuit 52 and conversion to parallel data from serial data or conversion to serial data from parallel data is performed based on this dividing signal. And the point of contact 23 (serial-data input/output terminal I/O) as an input/output terminal with the exterior is connected, the serial data supplied via the point of contact 23 are changed into parallel data from the exterior and the serial/parallel-conversion circuit 52 is supplied via a bus line at the prime controller 51 etc. The parallel data supplied to the serial/parallel-conversion circuit 52 via a bus line are changed into serial data and are supplied to the external computer (host computer) side from the point of contact 23.

[0027] The data memorized by EEPROM55 of this IC20 is that predetermined program voltages are supplied to the point of contact 22 (program-voltages input terminal VPP) from the exterior and rewriting of it is enabled.

[0028]Next the composition by the side of the floppy disk 10 by which this IC20 was built in and the host computer accessed is explained. Drawing 7 is a figure showing the composition of this host computer and 61 in a figure is shown and the main prime controllers (CPU) to this prime controller 61. The floppy disk interface 62 the hard disk unit 63 RAM 64 ROM 65 the keyboard interface 66 the CRT interface 68 and the serial/parallel-conversion circuit 69 are connected via the bus line. And the floppy disk interface 62 The interface by the side of the record data by the side of the magnetic disk 12 of the floppy disk 10 with which the floppy disk driving 30 mentioned above was equipped and the prime controller 61 is performed and. The interface IC20 built in the floppy disk 10 and by the side of the prime controller 61 is performed.

[0029]The keyboard 67 makes it have connected with the keyboard interface 66 and the operation information on the keyboard 67 is transmitted to the prime controller 61 side via the interface 66. CRT display device 70 is connected the indicative data supplied via a bus line is supplied to the CRT display device 70 side and the corresponding character and picture are displayed on the CRT interface 68. It enables it to have transmitted data to the external instrument (peripheral equipments such as a printer: not shown) connected via the serial/parallel-conversion circuit 69.

[0030]And between the host computer constituted in this way and IC20 in the floppy disk 10 communication is performed by processing as shown in drawing 9 and data processing which uses IC20 is performed. That is the signal of predetermined potential is first supplied as the power supply VCC and the program voltages VPP from the host computer side and the clock CLK of predetermined frequency is supplied and the state where IC20 can operate is set up (Step 201). The reset signal of a low level "L" is supplied in the state of this beginning and it changes into the state where the prime controller 51 in IC20 was reset.

[0031]And the reset pulse RST is changed to high level "H" reset is canceled and IC20 is started (Step 202). Here when IC20 starts an initial data required for data exchange as a reply signal is transmitted to the host computer side from the prime controller 51 in IC20 (Step 203). The information etc. which determine a logical level a first bit etc. of the data which IC20 receives are included in this initial data.

[0032]And in the prime controller 61 side of a host computer if this initial data is received the interface of IC20 will be set as the state where it corresponded and future sessions will be performed. Next a command is made to transmit to the prime controller 51 in IC20 from a host computer (Step 204). This command comprises 5 bytes for example and shows the attribute of command structure a command parameter etc.

[0033]And in the prime controller 51 of IC20 the transmitted command belongs to

the command structure given to this IC and the authentication data which moreover judges whether a command and a parameter are the right and is carried out as a result of judging is returned to a host computer (Step 205). When the authentication data judged that a command is normal is returned, the data corresponding to a command is made to transmit continuously (Step 206). This direction of a data transfer is set up by a command. There may be no data transfer depending on a command.

[0034] And the status which finally shows that the processing by the side of IC20 was completed is transmitted to the host computer side (Step 207) and this session is ended. Then a host computer repeats from the command transmission of Step 204 to status reception of Step 207 if needed.

[0035] And the command of two systems is prepared as a command used in this case in this example. That is it is a command treated without preparing a management command as the 1st command and being known by the user and is the command by which use was permitted only to the publisher and administrator of the floppy disk 10.

[0036] And access at the time of the 2nd command using the floppy disk 10 by the command which controls the interface of IC20 using this command is performed.

[0037] Although the floppy disk 10 with a built-in IC of this example is used with the composition explained above, an example of processing in the case of using following among these ICs is explained with reference to the flow chart of drawing 8.

[0038] The program data for computers is made to encipher and record on the magnetic disk 12 in the floppy disk 10 and ROM56 in IC20 is made to memorize the enciphered program here. The boot program required to read the recorded program data is made to record on the magnetic disk 12. This boot program is not made to encipher. And it enables it to set the password (number in the number of a predetermined beam) for reading an enciphered program from IC20 as IC20 and the data of this set-up password is made to save EEPROM55 in IC20. Apart from the password for this enciphered program read-out, the password for block release mentioned later is also set up and it is made to save EEPROM55 in IC20.

[0039] And only when the same number as the password registered into EEPROM55 is supplied from the host computer side, it enables it to have read the enciphered program memorized in IC20 to the host computer side. It has been made to perform block processing which the registered password is control of the prime controller 51 in IC20 when the input process of this mistaken password is performed, succeeding the case where a different number is inputted 3 times and forbids read-out of the enciphered program from this IC20. In this state where it was blocked, even if a right password is inputted, read-out



of an enciphered program is forbidden.

[0040]And the block is canceled when the same number as the password for block release registered into EEPROM55 is supplied from the host computer side in this state where it was blocked. However when the input of the password for this block release is mistaken continuously 10 times as the prime controller 51 in IC20 does not receive the input of the password for block release itself it has been made to be carried out in the higher-level block. Unless the administrator (floppy disk issue-origin) of this SEKIU rete system cancels using the tool for management it is made to have not returned to the state where it can access with IC20 where this high-level block is performed.

[0041]It enables it to have memorized the additional information (arbitrary information including an easy table of contents a data user name etc.) about the program which was enciphered by the magnetic disk 12 and recorded on it which does not need to be enciphered in the memories (RAM54 etc.) in IC20.

[0042]The processing in the case of playing the data which was enciphered in this way and recorded on the magnetic disk 12 in the floppy disk 10 (or enciphering to the magnetic disk 12 data record) is explained in order according to the flow chart of drawing 8 below. First a host computer reads the boot program recorded on the magnetic disk 12 and is made to read it in a host computer (Step 101). This operation is the same as the operation at the time of starting of the program currently recorded on the conventional floppy disk.

[0043]And it is made to indicate that CRT display device 70 by the side of a host computer has an input request of a password after this startup (Step 102). When after operation of a password is performed by the keyboard 67 this inputted data of a number is made to transmit to IC20 in the floppy disk 10 after this display (Step 103). And if the status from IC20 is received by the host computer side (Step 104) it will be judged whether IC20 is blocked with the data received at this time (Step 105).

[0044]When blocked at this time it is made to indicate blocked by CRT display device 70 by the side of a host computer (Step 106). When the authentication result of whether a password is in agreement when not blocked is judged (Step 107) and a code case is in agreement a mode input is performed by operation of the keyboard 67 etc. (Step 109). This mode input is for choosing whether the additional information memorized by IC20 is read or read-out of an enciphered program is performed.

[0045]When a password is not in agreement at Step 107 after giving an indication which requires reinput of a password to CRT display device 70 by the side of a host computer (Step 109) it returns to Step 103.

[0046]And after a mode input is performed at Step 109 it is judged whether it is that the mode in which the prime controller 61 by the side of a host computer was inputted is what checks additional information (Step 110). Herein

not being the mode in which additional information is checked it performs processing which makes the enciphered program memorized by ROM56 in IC20 transmit to RAM64 by the side of a host computer (Step 111). And judge whether it is that the processing needed at this time is the processing (processing made to write in) which data is made to record on a floppy disk (Step 112) and in making it record. It is considered as the data which had data to record enciphered and this enciphered data is made to record on the predetermined sector of the magnetic disk 12 by the processing by the side of the host computer based on the enciphered program transmitted to RAM64 (Step 113). The additional information (data of a recording date etc.) produced at this time is made to transmit to IC20 and the area which memorizes additional information is made to memorize (Step 114).

[0047] And when it judges that it is the processing (processing made to read) reproduced at Step 112. By the processing by the side of the host computer based on the enciphered program which played the predetermined data recorded on the magnetic disk 12 made transmit to the host computer side and was transmitted to RAM64. Decrypt the played data the drive (hard disk or other floppy disks) side which had this decrypted data specified is made to supply and it is made to write in (Step 115).

[0048] And after processing of this record and reproduction is completed the purging process which makes the enciphered program which RAM64 by the side of a host computer has memorized eliminate is performed (Step 116). After the erasing processing of this enciphered program is completed it judges whether the session of IC20 required at this time was completed (Step 117) and when it ends it returns to the processing which uses DOS (disc operating system) by the side of a host computer (Step 118).

[0049] In being the mode in which additional information is checked at Step 110 the additional information memorized by IC20 is made to read into the host computer side (Step 119) and it displays this read additional information on CRT display device 70 (Step 120). And if this display is performed it will move to Step 117.

[0050] And when it judges that the session of IC20 is not completed at Step 117 it returns to Step 108 and is made to perform again from mode input processing.

[0051] After indicating blocked at Step 106 when it judges whether the alter operation of the password for block release occurs by the keyboard 67 (Step 121) and this alter operation occurs this inputted data of the password for block release is made to transmit to IC20 (Step 122). And if the status from IC20 is received by the host computer side (Step 123) authenticating processing of whether the password for block release was in agreement will be performed and it will be judged whether it was in agreement (Step 124).

Here when in agreement it moves to Step 108 and a mode input is received. When not in agreement access with IC20 is ended and it returns to the processing which moved to Step 118 and uses DOS by the side of a host computer.

[0052] The unauthorized use of the data enciphered and recorded by using the floppy disk 10 as mentioned above and record and playback of the enciphered data being performed can be prevented effectively. That is when IC20 built in the floppy disk 10 memorizes and it performs record and playback on a disk and only when the password is known the program about the method of enciphering reads this enciphered program and has come to be able to perform a data encryption and decryption. For this reason unless a password is known can decode the recorded data cannot read it and the preventive effect of an unauthorized use is high and it is difficult to read and copy an enciphered program and there are few possibilities that an enciphered program will leak outside.

[0053] Therefore even if it reproduces the data recorded for example on one floppy disk using the device copied altogether as it is the enciphered program itself is not reproduced but the program data recorded on the floppy disk is prevented from being used improperly.

[0054] Since the boot program required to read the recorded program data in this example was recorded on the magnetic disk 12 without enciphering operation until it reads this boot program by the control from a host computer. If it is the same as the conventional floppy disk and the processing which reads an enciphered program according to this boot program is made to be performed it is not necessary to prepare a control program special for encryption or decryption and can realize at the host computer side by control of the same program configuration as the case where the conventional floppy disk is used.

[0055] Since the disk and the enciphered program correspond by 1 to 1 when IC20 is made to build in one floppy disk like this example an enciphered program is changeable for every one floppy disk. By thus the thing for which an enciphered program is changed for every one floppy disk. Even if which enciphered program of a metaphor leaks outside all the record data of the disk with which this system is applied cannot be decoded only by only the data of the specific disk corresponding to this enciphered program being decipherable and an unauthorized use preventive effect becomes higher.

[0056] When in this example multiple-times (above-mentioned working example 3 times) continuation is carried out and collation processing of a password is performed accidentally. Since read-out of the enciphered program from built-in IC was blocked noting that a possibility of trying to read an enciphered program unjustly was high it keeps the work which those who do not know a password perform collating work repeatedly and decodes a password from being possible and the preventive effect of the unauthorized use also from this point is high.

[0057]Among thesewhere read-out of the enciphered program from harbored IC is blockedSince it is made to be made of another password to cancel this block statusCan perform management when blocked easily and the collating work of the password for canceling this block statusSince read-out of the enciphered program from built-in IC was thoroughly blocked when multiple-times (above-mentioned working example 10 times) continuation was carried out and it carried out accidentallythe effect over prevention of an unauthorized use is still higher.

[0058]In above-mentioned working examplewhen record and playback to a floppy disk were performedmake an enciphered program transmit to the host computer side from IC20and were made to perform processing of encryption or decryption within the host computerbut. As read-out of the enciphered program from IC20 cannot be performedit may be made to encipher the data recorded on decryption and the disk of the data instead played from the disk by the processing in IC20. In this casesince an enciphered program is not transmitted outside at allthere is no possibility that an enciphered program will be copied by the host computer sideand security nature is dramatically high. Howevercompared with the case where it is necessary to make the data played from the diskand the data recorded on a disk once transmit to IC20and to make it processand it is processed by the host computer sideplayback and record of data take time a little.

[0059]Although above-mentioned working example did not explain an encryption method in particularvarious encryption methods applicable to the data for computers can be used. For examplethe method of enciphering for every number of bytes equivalent to one sector of a floppy diskthe method of enciphering for every number of bytes equivalent to one trackthe method of bundling up data and a program and encipheringetc. can be considered. When enciphering for every predetermined sector or trackit may be made to change an encryption algorithm for every unit data of this to encipher. It may be made to encipher only some data of the data recorded on one floppy disk.

[0060]Although it was made to make IC20 memorize the additional information of the data recorded on a disk in above-mentioned working exampleit enciphers as occasion demands and may be made to make it memorize also about this additional information. It may be made to make it record on the predetermined area of the magnetic disk 12 instead of making IC20 memorize.

[0061]Although it applied to the magnetic disk in above-mentioned working exampleof courseit is applicable to other recording media. For exampleit is applicable also to the recording medium of the shape of a disksuch as a magneto-optical disc and an optical discand the recording medium of the tape shape of magnetic tape etc. In any caseit can be coped with if IC is made to build in the case which stores a recording medium. Various data other than the

program for computers is applicable also to the data recorded on a recording medium.

[0062]

[Effect of the Invention]According to this inventionthe enciphered program of the data recorded on the recording mediumThe security nature which decoding of the data which was memorized by IC attached to the case which stores this recording mediumcould not read an enciphered program from this IC unless the password was in agreementtherefore was recorded on the recording medium cannot be performedeitherand prevents the unauthorized use of the recorded data is high. For exampleit is difficult not to copy the enciphered program which is copied while it had been encipheredand decodes the copied databut to decode the copied dataeven if the user who does not know a password copies the data recorded on the recording medium to another recording mediumand an unauthorized use is prevented.

[0063]In this caseby collation of the password within ICwhen [ at which it set beforehand ] prescribed time continuation is carried out and disagreement is detectedeven if a password is in agreement by future collationthe effect of preventing unjust use by performing the block to which an enciphered program is not made outputting becomes higher.

[0064]By making the password set up apart from the password for enciphered program read-out in this state where it was blocked inputit is having been made to cancel the block and release in the state where it was blocked can be performed good.

[0065]IC the enciphered program was remembered to be is efficiently used for the memory in IC by making additional information memorize.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a perspective view showing one working example of this invention.

[Drawing 2]It is a top view showing the important section of one working example.

[Drawing 3]It is a sectional view which meets III-III line of drawing 2.

[Drawing 4]It is a top view showing the composition of the disk driving with which the disk of one working example is applied.

[Drawing 5]It is a sectional view which meets the V-V line of drawing 4.

[Drawing 6]It is a lineblock diagram showing built-in IC of one working example.

[Drawing 7]It is a lineblock diagram showing an example of the host computer

connected with built-in IC of one working example.

[Drawing 8] It is a flow chart figure showing the disk writing of one working example and read-out processing.

[Drawing 9] It is an explanatory view showing the communicating state of built-in IC of one working example and a host computer.

[Description of Notations]

10 Floppy disk

11 Case

12 Magnetic disk

13 Shutter

20 Built-in IC

21 22 23 24 25 26 27 and 28 Point of contact

30 Floppy disk driving

40 Terminal unit

41 42 43 44 45 46 47 and 48 Contact piece

51 Prime controller (CPU)

56 ROM

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